

Magic Show

A ***Wood Magic Forest Fair*** learning station for 4th graders

2023 edition (new science standards highlighted in yellow)

Objective

Students will be able to explain the difference between renewable and non-renewable, will know the meaning of biodegradable and recognize that trees are both renewable, recyclable, and biodegradable. Students will be able to describe how they use forest products in their everyday lives and that these products improve the quality of their lives. Students learn that using wood is an environmentally friendly choice.

Overview

Through magic and storytelling, students recognize that there are differing opinions concerning environmental issues and that things aren't always what they appear to be. They learn that education is a key component of understanding environmental issues and bringing differing groups together. Using a dream sequence, instructors show that leaving logging debris is not aesthetically pleasing, but is environmentally and economically sound. As a finale, students are introduced to a variety of everyday items that are made from wood products. Through this demonstration the students come to realize the importance wood products have on the quality of their everyday lives and that using wood is an environmentally friendly thing to do.

2021 SC Science and Math Standards

4-ESS3-1. Obtain and combine information to describe that energy and fuels are derived from natural resources and how their uses affect the environment.

Earth and Human Activity (ESS3)

4-ESS3-2. Generate and compare multiple solutions to reduce the impacts of natural Earth processes on humans.

4.NSBT.2 Recognize math periods and number patterns within each period to read and write in standard form large numbers through 999,999,999.

4.NSBT.5 Multiply up to a four-digit number by a one-digit number and multiply a two-digit number by a two-digit number using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using rectangular arrays, area models and/or equations.

Materials List

Chinese sticks

Magic coloring book and bandana

Sign boards for RENEWABLE, RECYCLE, BIODEGRADABLE, NATURAL RESOURCE

Picture of a clearcut with debris and a clearcut that has been cleared

Old person outfit

Box of wood products

3 wooden 5-pound blocks or tree cookies

Marker and easel with poster paper to demonstrate math calculation

Step-by-Step Procedures

1. INTRODUCTION

Begin the lesson by asking the students for a brief review of what they did that day and what they learned today at Wood Magic, such as:

- What did you learn at the Sawmill about the waste produced when lumber is made? (wood waste is used for fuel to power the mill, dry the wood or to make other products – Nothing is wasted!)
- What “gifts” do forests give us? (wildlife, clean air and soil, jobs, recreation)
- Why is it important to recycle paper? (to save landfill space and conserve natural resources)
- When is fire good for forests? (when it is a prescribed fire and controlled)

“So, it looks like you have already learned a lot about the **magic of wood**. Now let me ask you to vote on a question by raising your hands. How many of you think that it is OK to grow and harvest trees for people to use? How many of you think that we should never cut down any trees?” Get students’ response for each question.

2. CHINESE STICKS TRICK

“Well, it looks like we’ve got two groups of people in here that think differently about how we should use trees and forests. You know, that’s the way it is about almost any topic dealing with the environment - people disagree about the issues. Some believe that we should leave our forests alone and not use the forests. Some others think that we can use our forests wisely and get products from them while also protecting and conserving our forests. Let me show you a neat trick about how we can solve this problem.”

Bring out the Chinese sticks and discuss the differing groups as you use the magic trick with the strings, using each string to represent differing groups.

1st stick represents foresters/loggers

2nd group represents environmental groups

-we make our living growing and harvesting trees -but you are destroying wildlife habitat

-you demand wood for homes, paper, etc. -but we are losing our forests

-but we plant it back (how many? – 5 trees) -it’s not the same

This continues back and forth until finally the strings are both extended and seemly broken. Using a student’s hair, demonstrate that education (as represented by the hair) has the potential to bring these groups together. “**Once these groups are educated about each others position and the facts, then we can bring them to work together. You can cut trees, but you must do it in an environmentally responsible way. You must take care of the wildlife; protect the soil, water and air; leave buffers for wildlife and beauty.**” Do trick where the strings come together.

“You see, education is a powerful thing and can do magic in bringing people together on environmental issues. Have you been educated about forestry today? ”

3. COLORING BOOK TRICK

Introduce the coloring book and show them the uncolored pages. Discuss with each other how you only have a few seconds to color your page. Tap a few students on the head, then show that all the pages were colored. Have a student rub the coloring book to erase your mistake. Show all the blank pages. Joke about what was done.

“You know this trick is a lot like some of the issues in forestry. Oftentimes when we do things like cut trees, people feel we are destroying something. But things aren’t always what they seem. Those trees are a natural resource.” [*Hold up sign – NATURAL RESOURCE*]. “Can anyone tell me what a natural resource is?” [*A raw material that comes from the earth*] “From the moment we are born to the day we die, we depend on natural resources for the air we breathe, the food we eat, the homes we live in, and all the products we use to survive. Those trees that we harvested provided habitats for certain animals, just like

the field that is left is a habitat for different animals. What seems to change one habitat benefits another animal's habitat. And what happens to the field over time?" *[It grows back into another forest]* "

That's right, it grows back into another forest. So things aren't always what they seem. When you cut a forest, it seems like it's gone forever, but nature is always changing."

4. CLEARCUT DREAM STORY

"Let me ask you a question. Are there as many trees today in America than there were 100 years ago? *[Most of the students will say no]* "Believe it or not there are more trees today than there were 100 years ago. Just think about it, 100 years ago most people were farmers and it took a lot of open fields to feed their large families and raise their cattle. It also took a lot of trees to heat their homes, cook their food, and build their houses and fences. Also, there were no foresters and modern machinery to help put out forest fires that started. Wildfires destroyed millions of acres each year as they burned uncontrolled. Today, as people have abandoned their farms and we've learned to regenerate forests and fight wildfires, 1/3 of the US is now forested and that number is growing."

"Back in the old days they used to give away land to people who would live on it. You know, I had a dream about two of you the other night and Mr. Danny was giving land away."

Select two students and discuss your dream about them. One student was sloppy and the other was neat. Mr. Danny gave each of them 1000 acres. Each of them sold their trees back to Mr. Danny at \$1000/acre for a total of \$1 million. (Demonstrate algorithm for calculation on poster paper.) Hold up picture of clearcut. The neat student had the land cleaned up of all debris, the sloppy one kept all the debris there. Thirty years later they had used up their money and needed to sell the trees again. The neat one had no trees, only gullies and rock. The other one had trees. Why? The debris that was left kept the soil from eroding, attracted wildlife to the area, and held seeds in place that later grew into a new forest.

"Just like we saw earlier, things aren't always like they seem. The clear-cut was ugly, but all the debris was left there because it was the environmentally responsible thing to do. By leaving it on the ground, it stopped erosion, attracted wildlife, decomposed, and helped grow a new forest."

5. THE MAGIC OF WOOD PRODUCTS

Remind students of what they saw at the sawmill and the products that were made from the tree there *[lumber, plywood, particle board, paper from the chips, mulch from the bark – nothing wasted]*. Ask the students if these are the only products that can be made from trees. Point out that there are over 5,000 products made from trees, then start removing products from the box. Briefly demonstrate or discuss each product. Occasionally ask "Would you want to live without these?" Point out how each of these products make the quality of your life better, from recreation to medicines.

Ask the students "How many people are there in the world today?" Point out that there are 6 billion or more and that each one uses an average of 5 lbs of paper daily. Hold up one 5-pound block of wood. Ask students "How many people live in America?" Point out that there are almost 300 million in US, but that we use more wood than the average world citizen. As you stack other 5-pound block on top of the first one, ask them "this much?", until you have gotten to 15 pounds.

"We use that much wood because we have a better quality of life here in the US than many other countries do. All the products you've seen were made from wood and they make your life better. Hopefully, we have also shown you that trees are the environmentally friendly natural resource to use. They provide clean air and water, habitat for wildlife, jobs for people, and a better life for you individually. Trees are the environmentally friendly natural resource to use. They are renewable, recyclable, and biodegradable."

“Now, let me see how many of you raised your hand and said we should never cut trees.” Hold up a roll of toilet paper and say **“When you go home think about how different your life would be without using trees!”**

6. WRAP-UP

Thank the students for attending and announce that they will be receiving a “gift” from us for attending – a bag of goodies with T-shirts, coloring books, and a special wooden magic trick. Have someone demonstrate how to blow bubbles through the solid red oak stick.